| REVISIONS | | | |
|---|---|---|---|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | Production Release ECN No. 5292 | | |

# INSTRUCTION MANUAL

# REGULATED POWER SUPPLY

# SUPPLEMENT

# MM43-E0339/115 MM40 SERIES

| REV. | A | A | A | A | A | A | A | A | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PAGE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

REVISION STATUS

| | | | | | |
|---|---|---|---|---|---|
| | | DRAFTSMAN: H. Druschel | DATE: 11/4/80 | LH RESEARCH | |
| | | CHECKER: S Huttrison | 11/3/80 | SUPPLEMENT MM43-E0839/115 MM40 SERIES | |
| | | APPR.: J. Kelly | 11/4/80 | | |
| | | TOLERANCE: .XX / .XXX / ANGLE | | DWG SIZE: A | PRODUCT CODE: 47 |
| NEXT ASS'Y | USED ON | | | DWG NO.: 846230-002 | REV.: A |
| APPLICATION | | UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES | | SCALE | PAGE 1 OF 8 PAGES |

SUPPLEMENT FOR MM43-E0839/115
POWER SUPPLY

This supplement, to the INSTRUCTION MANUAL MM40, is provided to establish the specific difference applicable to the model MM43-E0839/115 power supply.

Input Voltage: 115VAC±10% 47-63 Hz.

Output Voltage: Voltage and load current ratings.

| Output Voltage | Rated Load Current (Amps) | | |
|---|---|---|---|
| | V1 | V2 | V3 |
| 5 | 120 | | |
| 12 | | 10 | |
| 18 | | | 10 |

NOTE: A minimum load of 15A is required on the main output (V1) to maintain voltage on the auxiliary outputs. Total wattage of all outputs must not exceed 750 watts.

Overvoltage Protection:

| Output Voltage | Overvoltage Range (Volts) | | |
|---|---|---|---|
| | V1 | V2 | V3 |
| 5 | 6-6.5 | | |
| 12 | | 14.4-15.6 | |
| 18 | | | 21.6-23.4 |

Output Connections: Main output (V1) nickel plated 5/16 x 18 studs. Auxiliary outputs TB2.

Output Adjustments:

| Output Voltage | Adjustment Range (Volts) | | |
|---|---|---|---|
| | V1 | V2 | V3 |
| 5 | 4.75-5.25 | | |
| 12 | | 11.4-12.6 | |
| 18 | | | 17.1-18.9 |

Current Limit:

| Output Voltage | Current Limit Range (Amps) | | |
|---|---|---|---|
| | V1 | V2 | V3 |
| 5 | *98-113 | | |
| 12 | | 11.5-12.0 | |
| 18 | | | 11.5-12.0 |

*With auxiliary outputs at full rated load.

Remote Sense: Main V1, V2 and V3 outputs. Compensation for up to 250mV load cable loss can be accommodated. Internal sensing is automatic through resistors if sense lines are open.

## REPLACEABLE PARTS LIST

## CONTROL BOARD ASS'Y. 45138-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| C1, 2 | Capacitor, .01µf, 1.4KV | 150008-004 | LHR |
| C3 | Capacitor, 1000µf, 35V | 170004-004 | LHR |
| C4, 7 | Capacitor, 2200Pf, 600V | 150011-015 | LHR |
| C6 | Capacitor, .0015, 3KV | 150009-005 | LHR |
| C8 | Capacitor, 33µf, 35V | 174005-001 | LHR |
| C9 | Capacitor, 910Pf, 1KV | 150007-013 | LHR |
| C10 | Capacitor, 2µf, 200V | 162001-003 | LHR |
| C12 | Capacitor, .1uf, 100V | 150018-001 | LHR |
| C13 | Capacitor, .0033µf, 600V | 150011-016 | LHR |
| | Control Module | 45123-1 | LHR |
| CR1-6 | Diode | 201001-002 | LHR |
| CR7, 12-16 | Diode | 200001-001 | LHR |
| CR8-11 | Diode | 202001-004 | LHR |
| CR17 | Diode, 5.1V | 210001-011 | LHR |
| F2 | Fuse, 3/8A | 410001-012 | LHR |
| F1 | Fuse, 20A | 410003-017 | LHR |
| | Heatsink | 450002-001 | LHR |
| | Heatsink | 45080 | LHR |
| L1 | Inductor | 45759 | LHR |
| | Insulator, Mica | 505002-001 | LHR |
| R12 | Potentiometer, 1K | 113001-004 | LHR |
| R14 | Potentiometer, 1K | 111001-007 | LHR |
| R1, 7 | Resistor, 2.2K, 1/4W, 5% | 101001-094 | LHR |
| R2, 8 | Resistor, 39Ω, 1W, 5% | 103001-063 | LHR |
| R3-6 | Resistor, 10Ω, 1/4W, 5% | 101001-018 | LHR |
| R9 | Resistor, 75Ω, 1/4W, 5% | 101001-039 | LHR |
| R10 | Resistor, 220Ω WW 5W,10% | 103004-065 | LHR |
| R11 | Resistor, 1K, 1/4W, 5% | 101001-066 | LHR |
| R13 | Resistor, 1.3K, 1/8W, 5% | 102001-058 | LHR |
| R15 | Resistor, 1.1K, 1/8W, 1% | 102001-056 | LHR |
| R16 | Resistor, 220Ω, 1/4W, 5% | 101001-050 | LHR |
| R17 | Resistor, 2.7K, 1/4W, 5% | 101001-076 | LHR |
| R18 | Resistor, 1.5K, 1/2W, 5% | 101002-070 | LHR |
| R19-22 | Resistor, 100Ω, 1/4W, 5% | 101001-092 | LHR |
| R23, 24 | Resistor, 47Ω, 1/4W, 5% | 101001-034 | LHR |
| | Socket, Transistor | 415001-001 | LHR |
| | Spacer, Rubber | 45893 | LHR |
| TB1 | Terminal Block | 42004-037 | LHR |
| TS1 | Thermal Switch | 455001-001 | LHR |
| T1 | Transformer | 45172 | LHR |
| T2, 3 | Transformer | 45088 | LHR |
| T4 | Transformer | 44907 | LHR |
| Q1, 2, 7, 8 | Transistor | 250003-002 | LHR |
| Q3-Q6 | Transistor | 251008-002 | LHR |
| | Transistor, Pad | 505001-001 | LHR |

## REPLACEABLE PARTS LIST

### OUTPUT POWER BOARD ASS'Y. 45155-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| C1, 2 | Capacitor, .02µf, 1KV | 150007-014 | LHR |
| CR1-4 | Diode | 202007-001 | LHR |
| | Heatsink | 46747 | LHR |
| L1, 2 | Inductor | 44705 | LHR |
| R1, 2 | Resistor, 10Ω, 1W | 100002-008 | LHR |
| T1, 2 | Transformer | 44712 | LHR |

### MULTI-OUTPUT BOARD ASS'Y. 45114-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| C1 | Capacitor, .01µf, 1.4K | 150008-004 | LHR |
| C2 | Capacitor, 560µf, 80V | 171008-002 | LHR |
| C3, 9, 13-16 | Capacitor, .1µf, 100V | 150012-001 | LHR |
| C4, 10 | Capacitor, .01µf, 16V | 150002-001 | LHR |
| C5, 11 | Capacitor, 200µf, 50V | 171004-005 | LHR |
| C7 | Capacitor, .005µf, 3KV | 150009-007 | LHR |
| C8 | Capacitor, 1000µf, 50V | 171004-009 | LHR |
| C17, 18 | Capacitor, 33µf, 35F | 174005-001 | LHR |
| CR1, 2 | Diode | 201002-005 | LHR |
| BR1, 2 | Diode, Bridge | 204002-002 | LHR |
| | Heatsink | 45080 | LHR |
| | Heatsink | 450001-002 | LHR |
| L1, 2 | Inductor | 45074 | LHR |
| | Insulator, Mica | 505002-001 | LHR |
| R9, 10 | Potentiometer, 1K | 111001-007 | LHR |
| MOD1, 2 | Regulator Module, ASS'Y | 45142-1 | LHR |
| R1 | Resistor, 27Ω, 2W,10% | 100003-011 | LHR |
| R2, 6 | Resistor, .027Ω, 5W, 5% | 103004-004 | LHR |
| R3, 4, 7, 8 | Resistor, 47Ω, 1/4W, 5% | 101001-034 | LHR |
| R5 | Resistor, 47Ω, 2W,10% | 100003-017 | LHR |
| R11 | Resistor, 1.10K, 1/8W, 1% | 102001-056 | LHR |
| R12 | Resistor 5.36K, 1/4W, 1% | 102001-156 | LHR |
| R13 | Resistor, 10K, 1/4W, 5% | 101001-090 | LHR |
| R14, 19 | Resistor, 2.2K, 1/4W, 5% | 101001-074 | LHR |
| R15, 18 | Resistor, 15K, 1/4W, 5% | 101001-094 | LHR |
| R16 | Resistor, 1.1K, 1/8W. 1% | 102001-056 | LHR |
| R17 | Resistor, 9.09K, 1/8W, 1% | 102001-078 | LHR |
| R20 | Resistor, 22K, 1/4W, 5% | 101001-095 | LHR |
| SCR1, 2 | SCR | 221007-001 | LHR |
| | Socket, Transistor | 415001-001 | LHR |
| | Spacer, Rubber | 45799 | LHR |
| TB1 | Terminal Block | 420007-038 | LHR |

## REPLACEABLE PARTS LIST

### MULTI-OUTPUT BOARD ASS'Y. 45114-1 - Continued

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| T1 | Transformer | 44724 | LHR |
| T2 | Transformer | 45134 | LHR |
| Q1, 2 | Transistor | 251009-002 | LHR |
| | Ty-Rap | 555001-001 | LHR |

### BUSS BAR ASS'Y. 45156-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| | Buss Bar | 44457-1 | LHR |
| | Buss Bar | 44460-1 | LHR |
| | Buss Bar | 44460-2 | LHR |
| | Buss Bar | 44457-2 | LHR |
| C1, 2 | Capacitor, 40,000µf 7.5V | 172001-002 | LHR |
| L1, 2 | Toroid, Core | 405004-005 | LHR |

### RFI FILTER BOARD 45158-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| C1 | Capacitor, 220µf, 10V | 174002-002 | LHR |
| C2-4 | Capacitor, .1µf, 100V | 150012-003 | LHR |

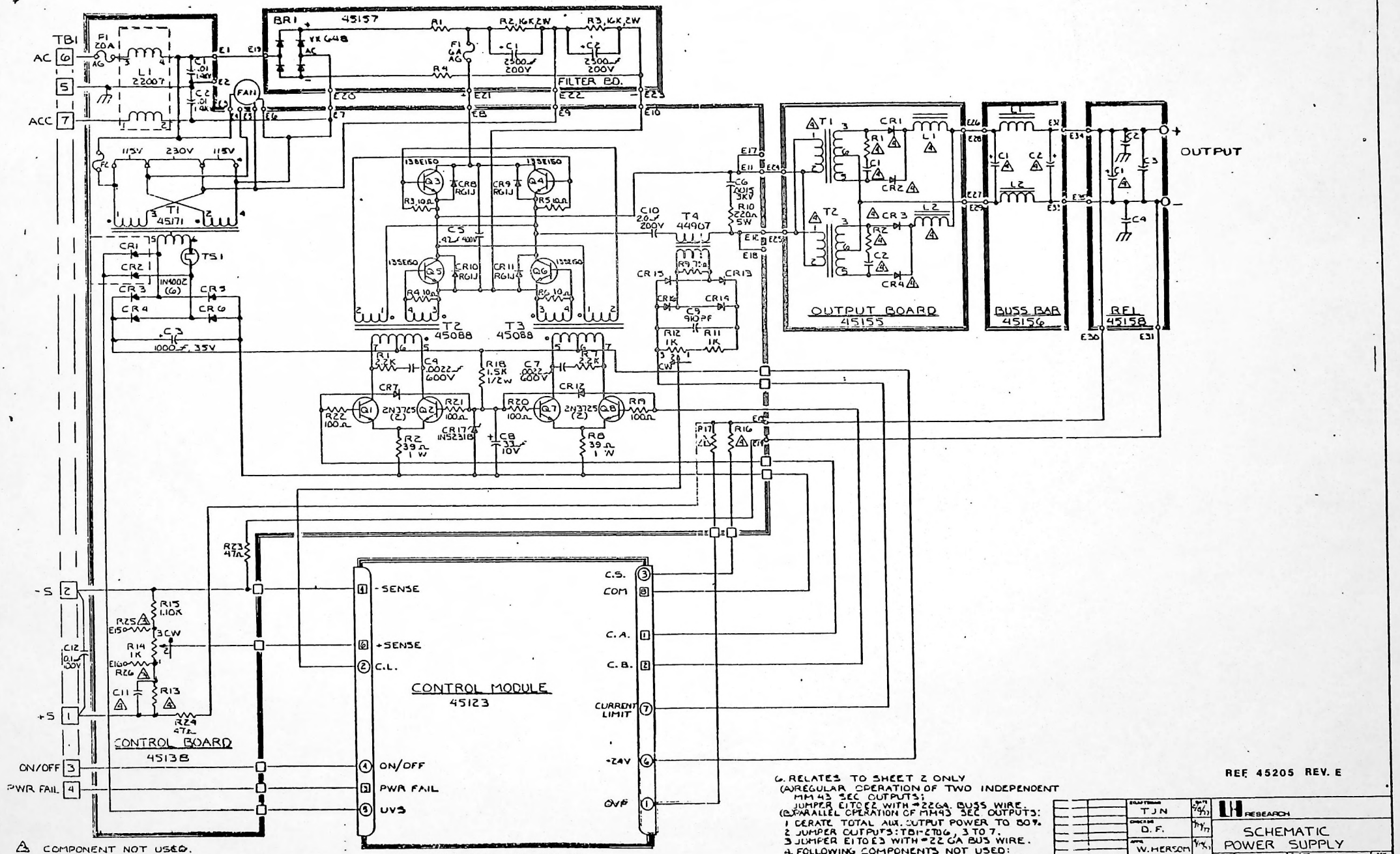
### POWER SUPPLY ASS'Y. 45293-71

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| | Fan, 115VAC | 440001-005 | LHR |
| | Screen, Fan | 44590 | LHR |
| | Terminal Board Cover | 45301 | LHR |

## REPLACEABLE PARTS LIST

## FILTER BOARD ASS'Y. 45157-1

| Ref. Des. | Description | Part No. | Supplier |
|---|---|---|---|
| C1, 2 | Capacitor, 2500µf, 200V | 91S200JC252 | STM |
| BR1 | Diode Bridge | VK648 | VARO |
| F1 | Fuse, 3AG, 6A | 312006 | Littelfuse |
| | Fuse Clip | 102068 | Littelfuse |
| | Heatsink | 44576 | LHR |
| R2, 3 | Resistor, 33K, 2W, 5% | RC42 | R-OHM |
| R1, 4 | Thermistor, SG3 | 130001-003 | LHR |


TBI
AC
ACC
F1 20A AG
L1 22007
C1 .01 1400V
C2 .01 1400V
FAN
115V 230V 115V
T1 45171
BR1 45157
VK 648 AC
A1
R2, 1K, 2W
R3, 1K, 2W
F1 4A AG
R4
-C1 2500 200V
-C2 2500 200V
FILTER BD.
E1 E19 E20 E21 E22 E23 E6 E7 E8 E9 E10
CR1 CR2 CR3 CR4 CR5 CR6 IN4002 (6)
TS1
C3 1000 F, 35V
Q3 Q4 Q5 Q6 2N3725 (2)
CR8 CR9 CR10 CR11 RGIJ
R3 10Ω R4 10Ω R5 10Ω R6 10Ω
C5 .47 400V
T2 45088
T3 45088
R1 2.2K R7 2.2K
C9 .0022 600V C7 .0022 600V
R18 1.5K 1/2W
CR7 CR12
R21 100Ω R20 100Ω R22 100Ω R9 100Ω
R2 39Ω 1W R8 39Ω 1W
CR17 IN5231B
C8 33 10V
C10 2.0 200V
T4 44907
C6 .0015 5KV
R10 220Ω 5W
E17 E11 E24 E18 E25
CR13 CR14 CR15 CR16
R9 7.5Ω
C9 910 PF
R12 1K R11 1K 3W CW
T1 CR1 L1 C1 R1 CR2
T2 CR3 L2 C2 R2 CR4
OUTPUT BOARD 45155
E26 E27 E28 E29
L1 L2 C1 C2
BUSS BAR 45156
E32 E33 E34 E35
C2 C3 C1 C4 C9
RFI 45158
E30 E31
OUTPUT
P17 R16 E16
R23 47Ω
-S 2
+S 1
R15 1.10K
R25 E150
3 CW
R14 1K
E160 R26
C12 .01 500V
C11
R13
R24 47Ω
CONTROL BOARD 45138
ON/OFF 3
PWR FAIL 4
CONTROL MODULE 45123
-SENSE
+SENSE
C.L.
ON/OFF
PWR FAIL
UVS
C.S.
COM
C.A.
C.B.
CURRENT LIMIT
+24V
OVP
6. RELATES TO SHEET 2 ONLY
(A)REGULAR OPERATION OF TWO INDEPENDENT MM 43 SEC OUTPUTS;
JUMPER E1 TO E2 WITH #22GA. BUSS WIRE.
(B)PARALLEL OPERATION OF MM43 SEC OUTPUTS:
1 DERATE TOTAL AUX. OUTPUT POWER TO 80%.
2 JUMPER OUTPUTS: TB1-2 TO 6, 3 TO 7.
3 JUMPER E1 TO E3 WITH #22 GA BUS WIRE.
4 FOLLOWING COMPONENTS NOT USED:
REG. NO 2, R16, SCR2, C10, R7,8,10,17,18,20, C14
REF 45205 REV. E
1. ○ SYMBOL INDICATES P1 □ SYMBOL INDICATES P2.
2. ALL DIODES ARE IN4148
3 ALL RESISTORS ARE 1/4W, 5%.
4 COMPONENT VARY WITH OUTPUT VOLTAGE SEE APPROPRIATE ASS'Y DASH NO FOR CORRECT VALUES.
NOTES: UNLESS OTHERWISE SPECIFIED.
DRAWN T J N
CHECKED D. F.
APPD W. HERSON
RESEARCH
SCHEMATIC POWER SUPPLY
SIZE B
PROJECT CODE
DWG NO 846230-002
REV A
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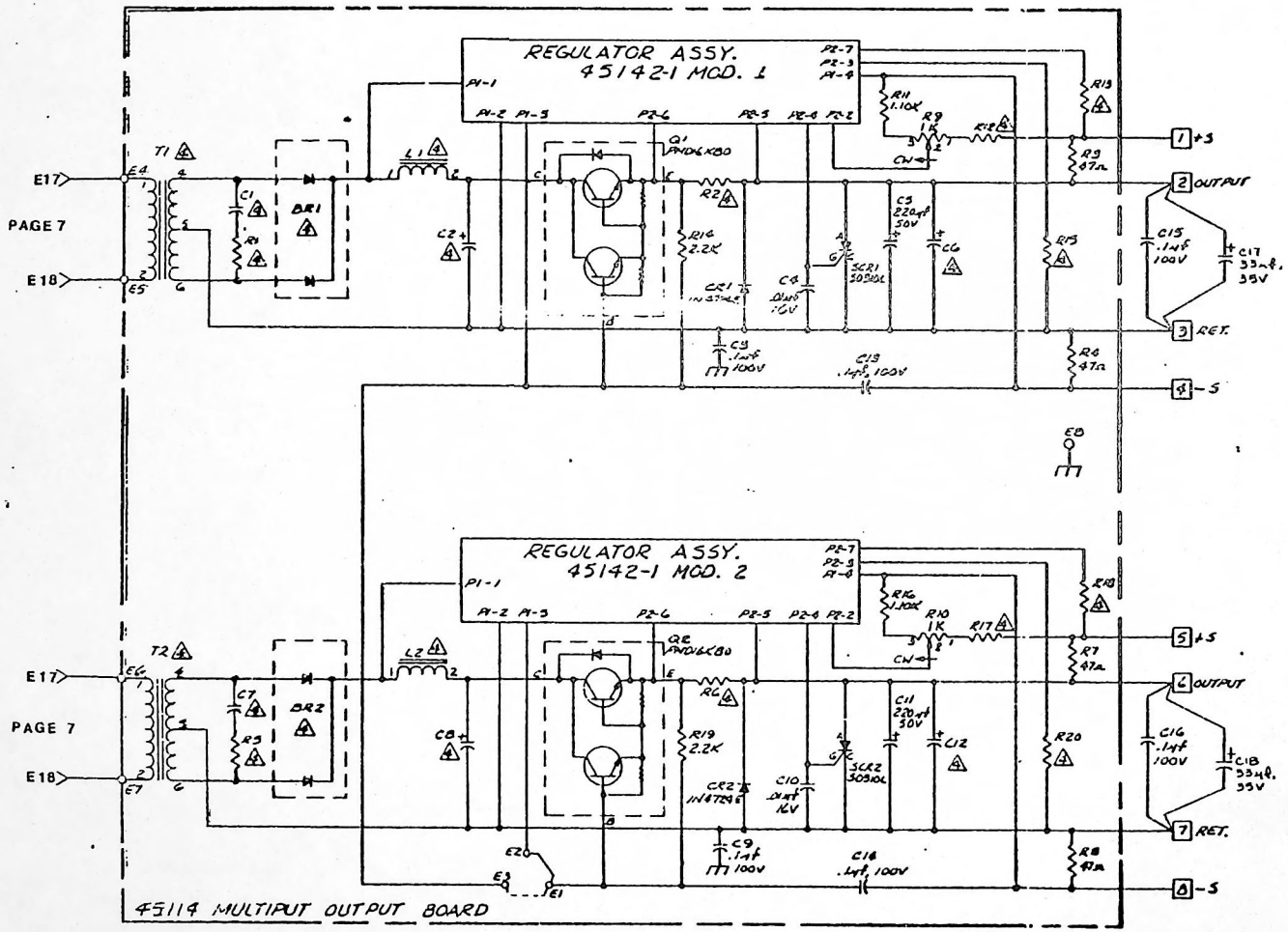


REF 45205 REV.E

| | | | | | |
|---|---|---|---|---|---|
| | | DRAFTING TJN | DATE 7/8/77 | LH RESEARCH | |
| | | | | SCHEMATIC POWER SUPPLY | |
| | | | | SIZE B | DWG NO. 846230-002 REV A |
| | | | | | PAGE 8 OF 8 PAGES |